

Trusted Decentralized Networking Towards 6G Era Industry Connections Activity Initiation Document (ICAID)

Version: 1.0, 11 September 2023

IC23-007-01 Approved by the CAG 21 September 2023

Instructions

- Instructions on how to fill out this form are shown in red. Please leave the instructions in the final document and simply add the requested information where indicated.
- Spell out each acronym the first time it is used. For example, “United Nations (UN).”
- Shaded Text indicates a placeholder that should be replaced with information specific to this ICAID, and the shading removed.
- Completed forms, in Word format, or any questions should be sent to the IEEE Standards Association (IEEE SA) Industry Connections Committee (ICCom) Administrator at the following address: industryconnections@ieee.org.
- The version number above, along with the date, may be used by the submitter to distinguish successive updates of this document. A separate, unique Industry Connections (IC) Activity Number will be assigned when the document is submitted to the ICCom Administrator.

1. Contact

Provide the name and contact information of the primary contact person for this IC activity. Affiliation is any entity that provides the person financial or other substantive support, for which the person may feel an obligation. If necessary, a second/alternate contact person’s information may also be provided.

Name: Zhibin Lei

Email Address: zblei@ust.hk

Employer: The Hong Kong University of Science and Technology

Affiliation: The Hong Kong University of Science and Technology

Alternate Contact

Name: Yang Liu

Email Address: yangliu@metopia.cc

Employer: Meta Metopia Technology Company Limited

Affiliation: Hong Kong Web 3.0 Association

IEEE collects personal data on this form, which is made publicly available, to allow communication by materially interested parties and with Activity Oversight Committee and Activity officers who are responsible for IEEE work items.

2. Participation and Voting Model

Specify whether this activity will be entity-based (participants are entities, which may have multiple representatives, one-entity-one-vote), or individual-based (participants represent themselves, one-person-one-vote).

Entity-Based

3. Purpose

3.1 Motivation and Goal

Briefly explain the context and motivation for starting this IC activity, and the overall purpose or goal to be accomplished.

Motivation

Trusted decentralized networking is necessary for the 6G era, which will offer significant advancements in network capacity and data transmission rates. A decentralized system will be able to provide on-demand network connectivity, computing, and storage capabilities, supporting intelligent decision-making at different levels. To accommodate the massive amounts of data that will converge into 6G and the Internet, trusted decentralized infrastructure must be built using various technologies such as blockchain, privacy-preserving computing, and information-centric networking. This infrastructure will be critical for applications such as smart cities, digital finance, smart water, smart healthcare, and smart manufacturing in the 6G era.

Goal

The goals of researching trustworthy decentralized Internet towards 6G era include but are not limited to:

1. Predicting the demand for trustworthy decentralized Internet infrastructure for verticals in the 6G era by studying and practice in the current development status and trends of verticals.
2. Blockchain-empowered AI will be proposed as a new paradigm towards 6G networking, providing a unified framework for trustworthy and secure communication.
3. Identifying gaps between current internet infrastructure and trusted decentralized internet infrastructure in the 6G era and corresponding standard gaps for further standardization.

3.2 Related Work

Provide a brief comparison of this activity to existing, related efforts or standards of which you are aware (industry associations, consortia, standardization activities, etc.).

None.

Describe the related work.

3.3 Previously Published Material

Provide a list of any known previously published material intended for inclusion in the proposed deliverables of this activity.

None.

3.4 Potential Markets Served

Indicate the main beneficiaries of this work, and what the potential impact might be.

- Residents and merchants in the Guangdong–Hong Kong–Macao Greater Bay Area, Mainland China, Southeast Asia, and the Middle East will be the initial areas. The rest of the world will be the later markets.
- Non-fungible token (NFT), Decentralized Science (DeSci) movement, and Decentralized Autonomous Organization (DAO) communities all over the world.
- Universities, organizations, governments, corporations, and individuals involved in the research, design, and solutions around Web 3.0.
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3.5 How will the activity benefit the IEEE, society, or humanity?

Describe how this activity will benefit the IEEE, society, or humanity.

- To grow a worldwide trusted decentralized networking platform from this activity.
- To offer bases for further networking standards towards 6G era.
- To develop workshops, workstreams, and webinars for IEEE groups to amplify the work-group's mission, and objectives.
- To provide IEEE researchers and engineers with references for predicting Internet business and technological development direction in the 6G era.
- To bridge the gap between business development and technological development and attract more IEEE researchers and engineers to engage in related research.

4. Estimated Timeframe

Indicate approximately how long you expect this activity to operate to achieve its proposed results (e.g., time to completion of all deliverables).

Expected Completion Date: 09/2025

IC activities are chartered for two years at a time. Activities are eligible for extension upon request and review by ICCom and the responsible committee of the IEEE SA Board of Governors. Should an extension be required, please notify the ICCom Administrator prior to the two-year mark.

5. Proposed Deliverables

Outline the anticipated deliverables and output from this IC activity, such as documents (e.g., white papers, reports), proposals for standards, conferences and workshops, databases, computer code, etc., and indicate the expected timeframe for each.

1. Use case reports of trusted decentralized networking platforms towards the 6G network and shared network resources (such as spectrum, bandwidth, storage, computing, electric energy, etc.) and start some trial projects. (1 year)
2. Technical reports on predicting the demand for trustworthy decentralized Internet infrastructure for verticals in the 6G era, on the gap between the current Internet infrastructure and the trusted decentralized Internet infrastructure in the 6G era, and on the gap between the current Internet infrastructure and the trusted decentralized network towards the 6G era. (1 year)
3. Open source trusted decentralized networking software developed by companies in the Guangdong–Hong Kong–Macao Greater Bay Area, Mainland China, Southeast Asia, and the Middle East that are participating in this IC activity. (Ongoing project 2 years or more)
4. An open source hardware and software platform that allows applications to access the distributed trusted network. Note: There may be other versions of this platform developed by companies. (Ongoing project 2 years or more)

5.1 Open Source Software Development

Indicate whether this IC Activity will develop or incorporate open source software in the deliverables. All contributions of open source software for use in Industry Connections activities shall be accompanied by an approved IEEE Contributor License Agreement (CLA) appropriate for the open source license under which the Work Product will be made available. CLAs, once accepted, are irrevocable. Industry Connections Activities shall comply with the IEEE SA open source policies and procedures and use the IEEE SA open source platform for development of open source software. Information on IEEE SA Open can be found at <https://saopen.ieee.org/>.

Will the activity develop or incorporate open source software (either normatively or informatively) in the deliverables? Yes

6. Funding Requirements

Outline any contracted services or other expenses that are currently anticipated, beyond the basic support services provided to all IC activities. Indicate how those funds are expected to be obtained (e.g., through participant fees, sponsorships, government, or other grants, etc.). Activities needing substantial funding may require additional reviews and approvals beyond ICom.

No additional funding requirement at this time.

7. Management and Procedures

7.1 Activity Oversight Committee

Indicate whether an IEEE Standards Committee or Standards Development Working Group has agreed to oversee this activity and its procedures.

Has an IEEE Standards Committee or Standards Development Working Group agreed to oversee this activity? No.

If yes, indicate the IEEE committee's name and its chair's contact information.

IEEE Committee Name: Committee Name

Chair's Name: Full Name

Chair's Email Address: who@where

Additional IEEE committee information, if any. Please indicate if you are including a letter of support from the IEEE Committee that will oversee this activity.

IEEE collects personal data on this form, which is made publicly available, to allow communication by materially interested parties and with Activity Oversight Committee and Activity officers who are responsible for IEEE work items.

7.2 Activity Management

If no Activity Oversight Committee has been identified in 7.1 above, indicate how this activity will manage itself on a day-to-day basis (e.g., executive committee, officers, etc.).

An Executive Committee including 5~10 volunteers will oversee the work of the Initiative.

The Executive Committee It will have a chair, a vice chair and other functionaries to deal with regular activities and any other issues may arise.

7.3 Procedures

Indicate what documented procedures will be used to guide the operations of this activity; either (a) modified baseline *Industry Connections Activity Policies and Procedures* ([entity](#), [individual](#)), (b) *Abridged Industry Connections Activity Policies and Procedures* ([entity](#), [individual](#)), (c) Standards Committee policies and procedures accepted by the IEEE SA Standards Board, or (d) Working Group policies and procedures accepted by the Working Group's Standards Committee. If option (a) is chosen, then ICom review and approval of the P&P is required. If option (c) or (d) is chosen, then ICom approval of the use of the P&P is required.

Specify the policies and procedures document to be used. Attach a copy of chosen policies and procedures.

(a) This activity will use abridged baseline Industry Connections Activity Policies and Procedures.

8. Participants

8.1 Stakeholder Communities

Indicate the stakeholder communities (the types of companies or other entities, or the different groups of individuals) that are expected to be interested in this IC activity and will be invited to participate.

- Telecommunication operators.
- Finance companies and virtual banks.
- Property management companies.
- Blockchain Technology companies.
- IT companies.
- Universities and Institutes.
- NGOs.

8.2 Expected Number of Participants

Indicate the approximate number of entities (if entity-based) or individuals (if individual-based) expected to be actively involved in this activity.

5 entities to start

8.3 Initial Participants

Provide a few of the entities or individuals that will be participating from the outset. It is recommended there be at least three initial participants for an entity-based activity, or five initial participants (each with a different affiliation) for an individual-based activity.

Use the following table for an entity-based activity:

Entity Name	Primary Contact Name	Additional Representatives
The Hong Kong University of Science and Technology	Zhibin Lei	
China Unicom	Xueqin Jia	Haowen Sun
China Merchants Energy Shipping Co. Ltd.	Shuai Wang	
Shanghai Bianjie AI Co.,Ltd.	Heng Cao	
DCCConnect Global	Henry Lam	
Meta Metopia Technology Company Limited	Yang Liu	

8.4 Activity Supporter/Partner

Indicate whether an IEEE committee (including IEEE Societies and Technical Councils), other than the Oversight Committee, has agreed to participate or support this activity. Support may include, but is not limited to, financial support, marketing support and other ways to help the Activity complete its deliverables.

Has an IEEE Committee, other than the Oversight Committee, agreed to support this activity? No

If yes, indicate the IEEE committee's name and its chair's contact information.

IEEE Committee Name: Committee Name

Chair's Name: Full Name

Chair's Email Address: who@where

Please indicate if you are including a letter of support from the IEEE Committee.